

REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination are requested.

By this amendment, claims 19-24 have been amended. Claims 1-18 were previously canceled. Thus, claims 19-24 remain pending. Claims 19-24 have been amended at the appropriate places to recite that the synchronization data is represented by at least one unique word. Support for the new claim recitations can be found at least at: Column 26, line 12. Also, claims 21 and 24 have been amended to make more explicit the already recited feature that the first data stream is not trellis encoded and the second data stream is trellis encoded. If the Examiner requires further supporting passages, she is invited to contact the undersigned by telephone.

A substitute specification is filed herewith to make amendments to the specification. Also, proposed drawing amendments and new formal drawings incorporating the proposed drawing amendments are filed herewith. No new matter has been added.

Applicants wish to thank the Examiner for her time and consideration during the personal interview of July 3, 2003. The substance of the arguments presented to the Examiner during the interview are detailed below in response to the rejections set forth in the outstanding Office Action.

Claims 19-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Farias et al. This rejection is traversed.

The claims have been amended to change the language "synchronization data" to "synchronization data represented by at least one unique word" and/or to recite that the demodulated data stream is reproduced according to the synchronization data represented by the at least one unique word." These features are not disclosed or suggested by Farias.

Each of the claims is drawn to one of the following: a transmission and receiving apparatus (claim 19); a transmission apparatus (claim 20); a receiving apparatus (claim 21); a transmission and receiving method (claim 22); a transmission method (claim 23); and a receiving method (claim 24).

Claims 19, 20, 22, and 23 include apparatus or method recitations involving a VSB modulated signal having information of a first data stream and a second data stream, where the second data stream is trellis encoded and modulated to an n-level VSB modulated signal, the first data stream is

modulated, without being trellis encoded, to an m-level VSB modulated signal, and the m and n level VSB modulated signals are transmitted, wherein the first data stream has synchronization data represented by at least one unique word. Claims 19, 21, 22, and 24 include apparatus or method recitations involving the demodulation of the m-level VSB modulated signal to the first data stream including the synchronization data represented by the at least one unique word, the demodulation of the n-level VSB modulated signal to a demodulated data stream which is reproduced according to the synchronization data represented by the at least one unique word, and trellis decoding of the demodulated data stream to the second data stream.

Farias does not disclose or suggest a system in which a first data stream includes synchronization data represented by at least one unique word, or a system in which a demodulated data stream (i.e., the second data stream before trellis decoding) is reproduced according to the synchronization data represented by the at least one unique word in the first data stream as recited in claims 19-24. Rather, the system of Farias has a main channel and a secondary channel and the symbols of the secondary channel are selected to have a higher average energy than the symbols of the main channel so that the secondary channel is easily detected and may be used to obtain frame synchronization for the system after brief dropouts. See Abstract of Farias. Thus, the symbols per se of the secondary channel are not synchronization data, rather the interlaced placement of the secondary channel relative the main channel (see Fig. 11A) coupled with the higher energy level of the secondary channel serves to provide synchronization. Thus, Farias does not disclose or suggest that synchronization data in the secondary channel is represented by at least one unique word or symbol, but rather that the energy level of the secondary channel and its interlaced placement relative to the main channel provides synchronization. There is no unique symbol or symbols in the secondary channel that represent synchronization data.

Also note Figure 10 of Farias, which shows that the synchronization detector 206 monitors the incoming signal at a point before the division of the signal into "main" and "secondary" is made in switch 190. Even further downstream after this division the actual data of the signals is decoded, i.e., in the decoders 202, 194, and 195. Thus, the synchronization data of Farias is not represented

by at least one unique word or symbol, but is recognized by the higher energy level of the interlaced secondary channel before any words are even decoded.

Thus, Farias clearly does not disclose the elements of claims 19-24. Furthermore, it is submitted that a modification of the system of Farias that would result in the inventions recited in claims 19-24 is much too substantial to have been obvious to a person having ordinary skill in the art at the time the present invention was made. Such a modification would require going against a main teaching of the reference of providing synchronization in the form of a secondary channel having a higher energy level which would avoid problems associated with dropouts during transmission.

Because of the distinctions discussed above, claims 19-24 are allowable over Farias and the prior art of record. Thus, it is submitted that the present application is in condition for allowance. The Examiner is invited to contact the undersigned attorney by telephone to resolve any remaining issues.

Respectfully submitted,

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FIG. 2

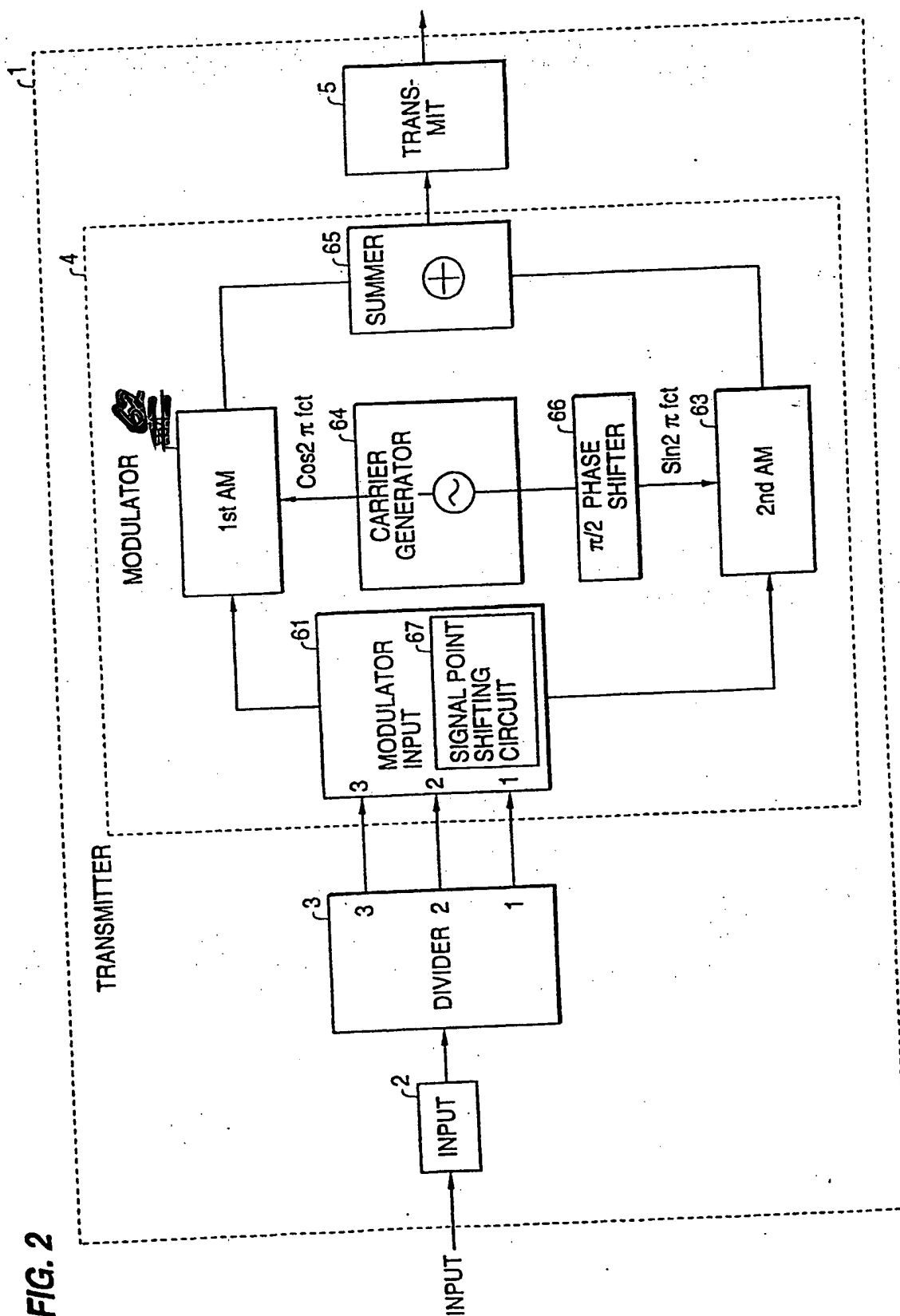


FIG. 10

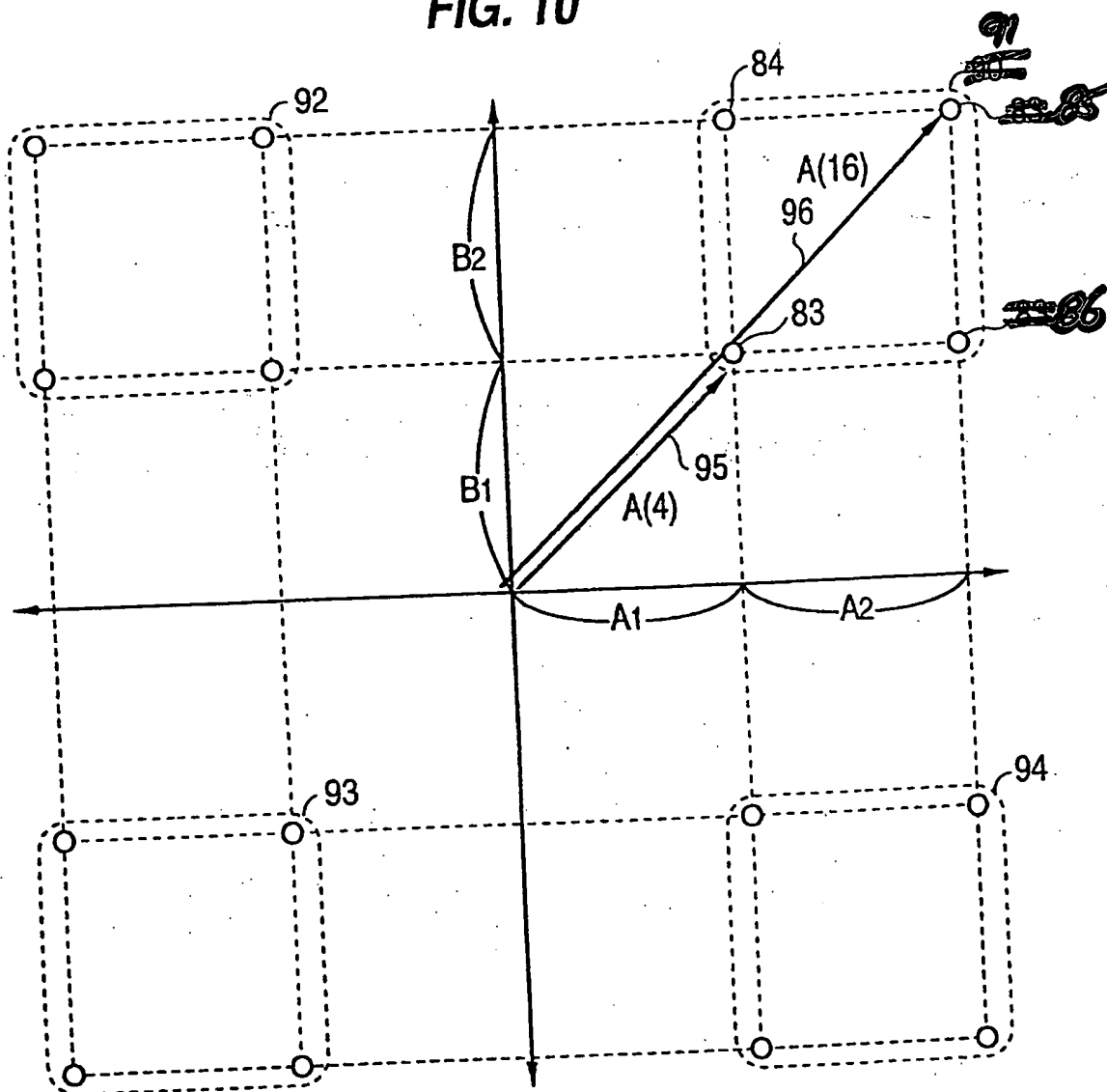
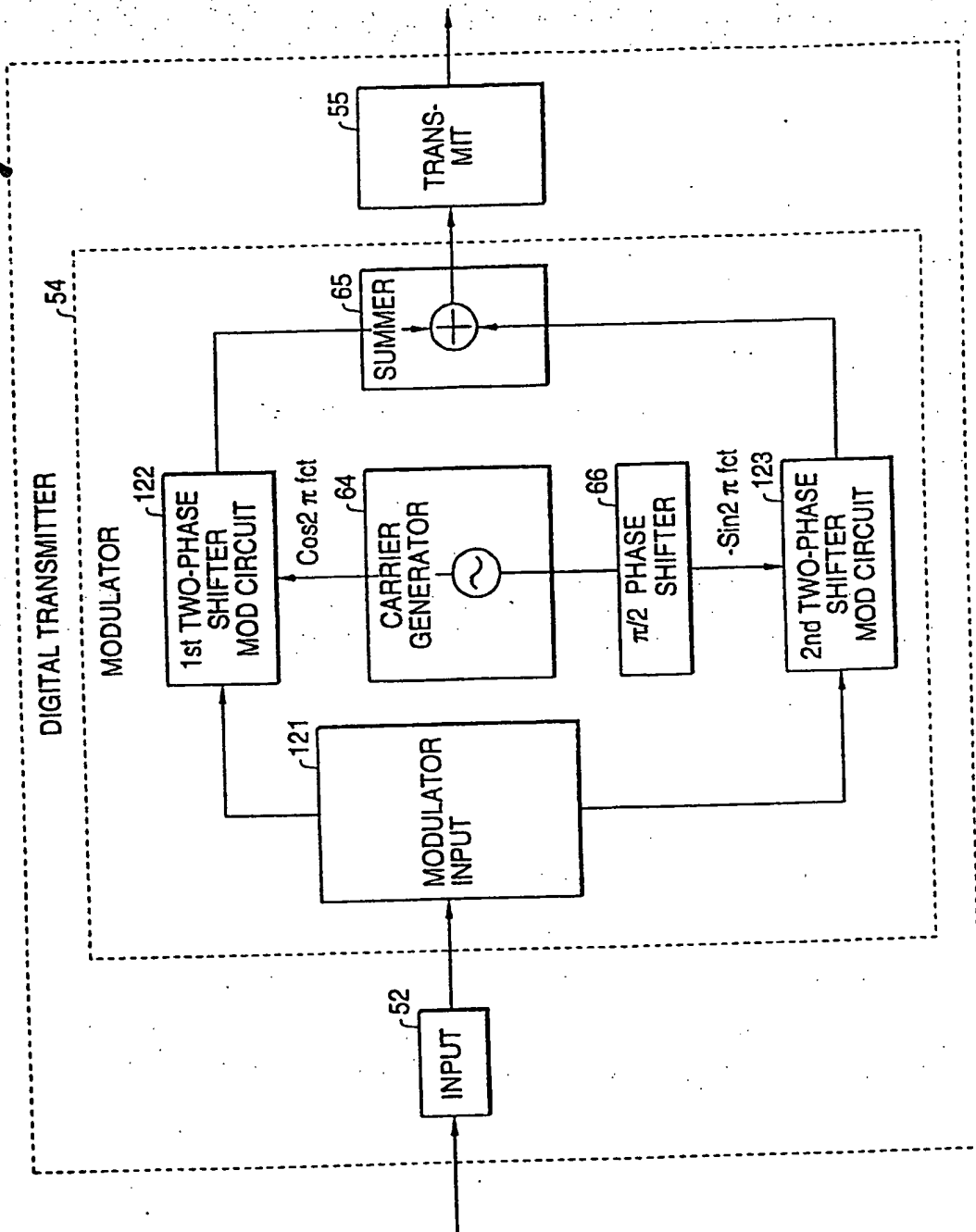


FIG. 17



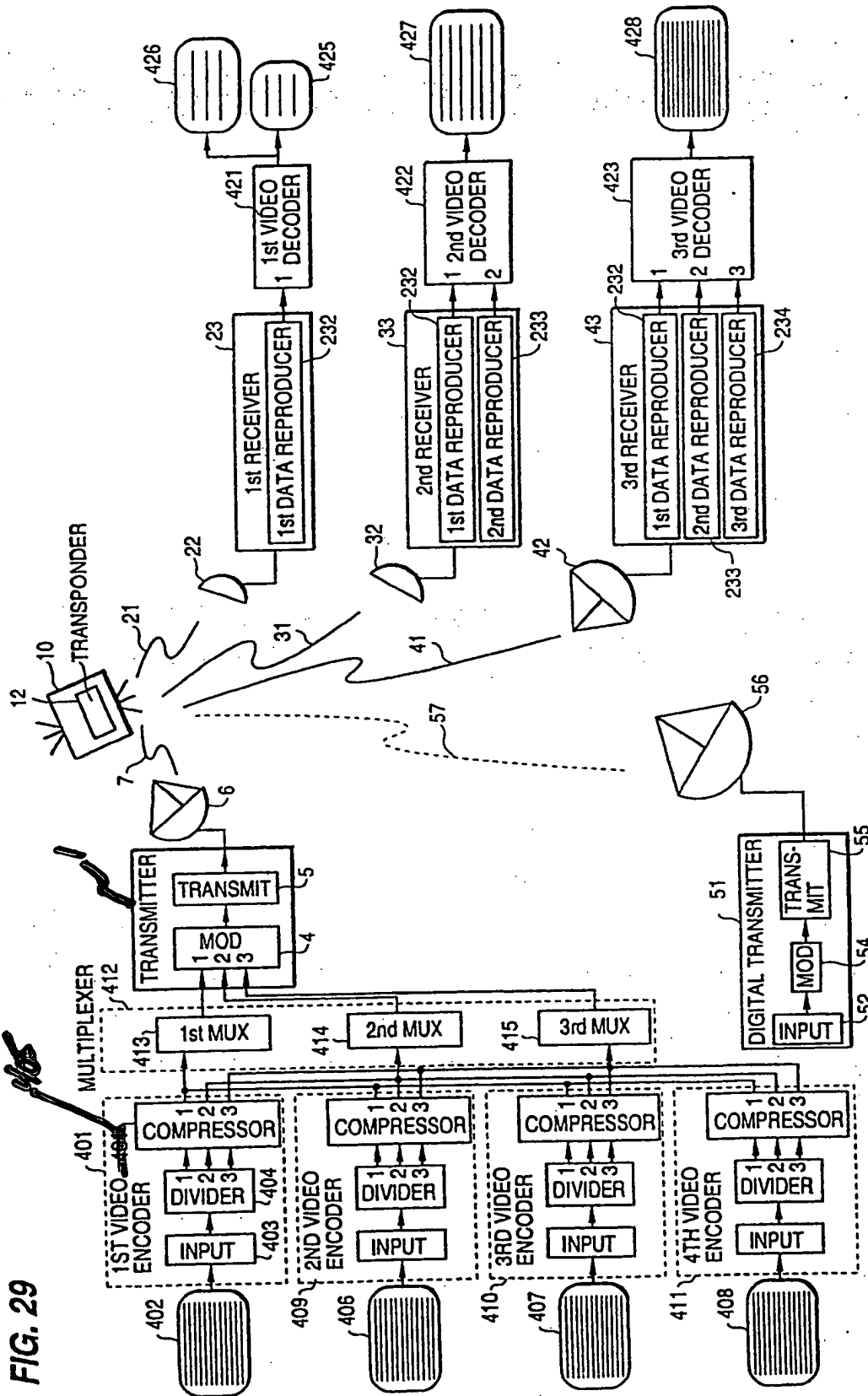


FIG. 48

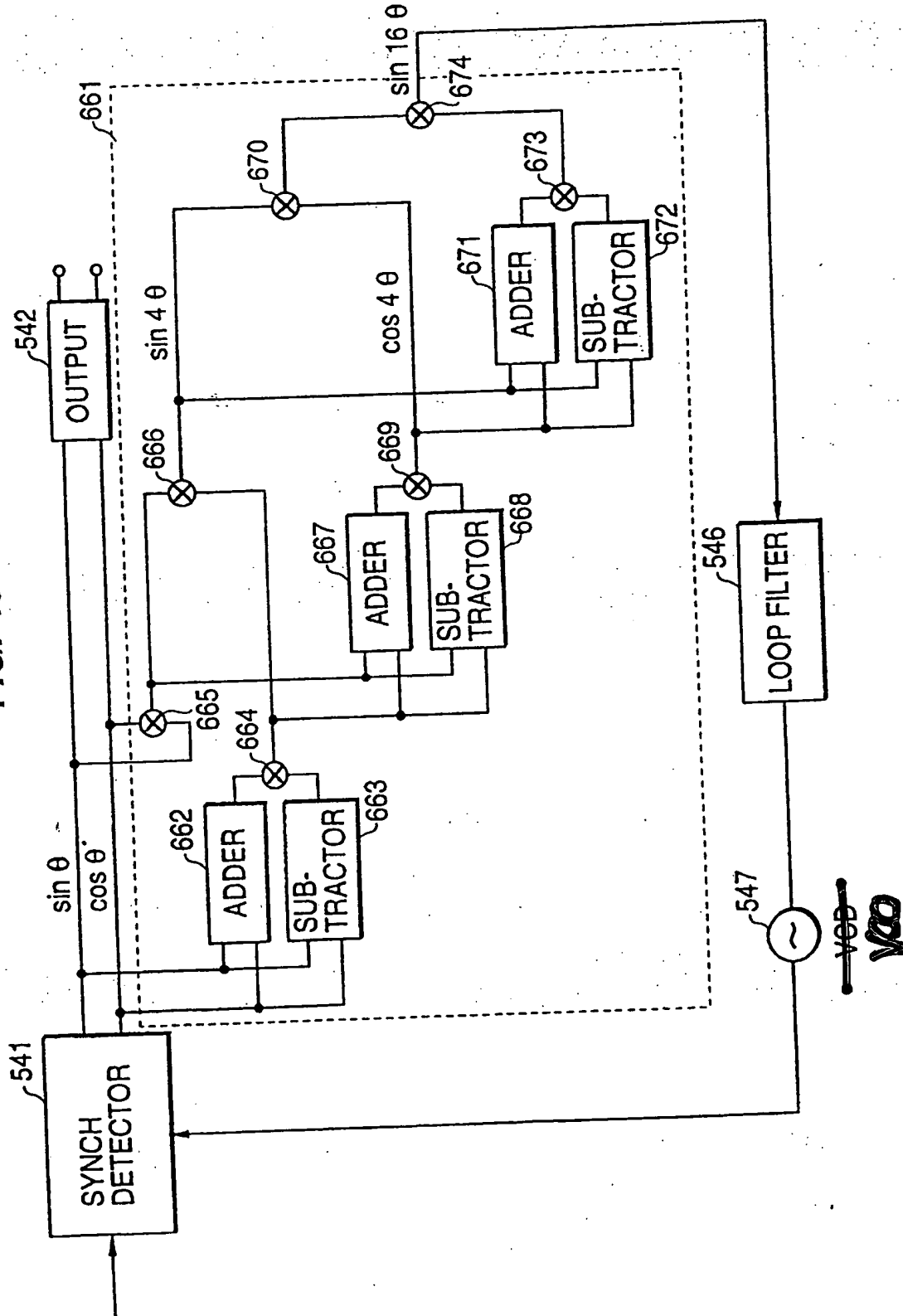
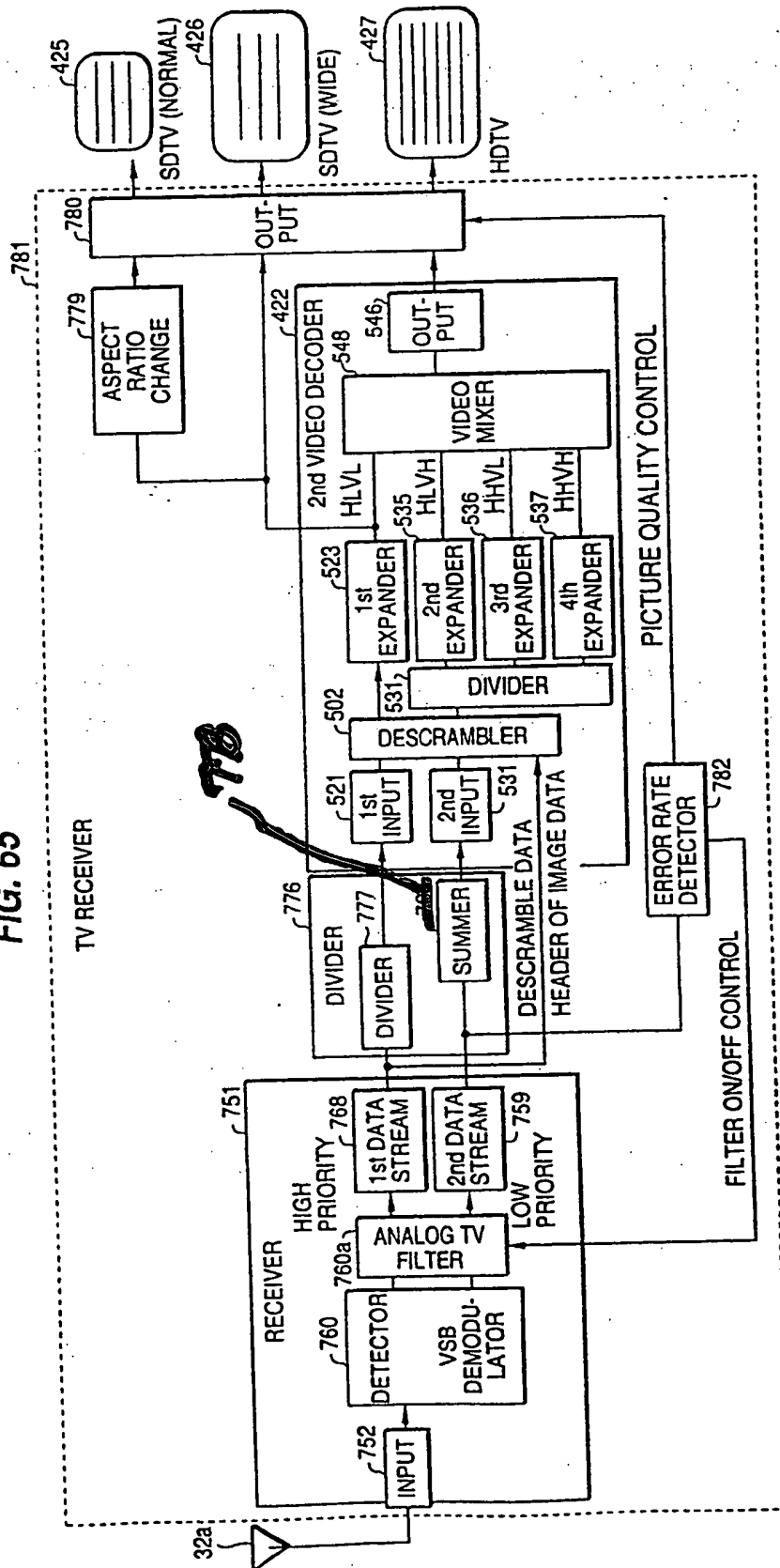


FIG. 65



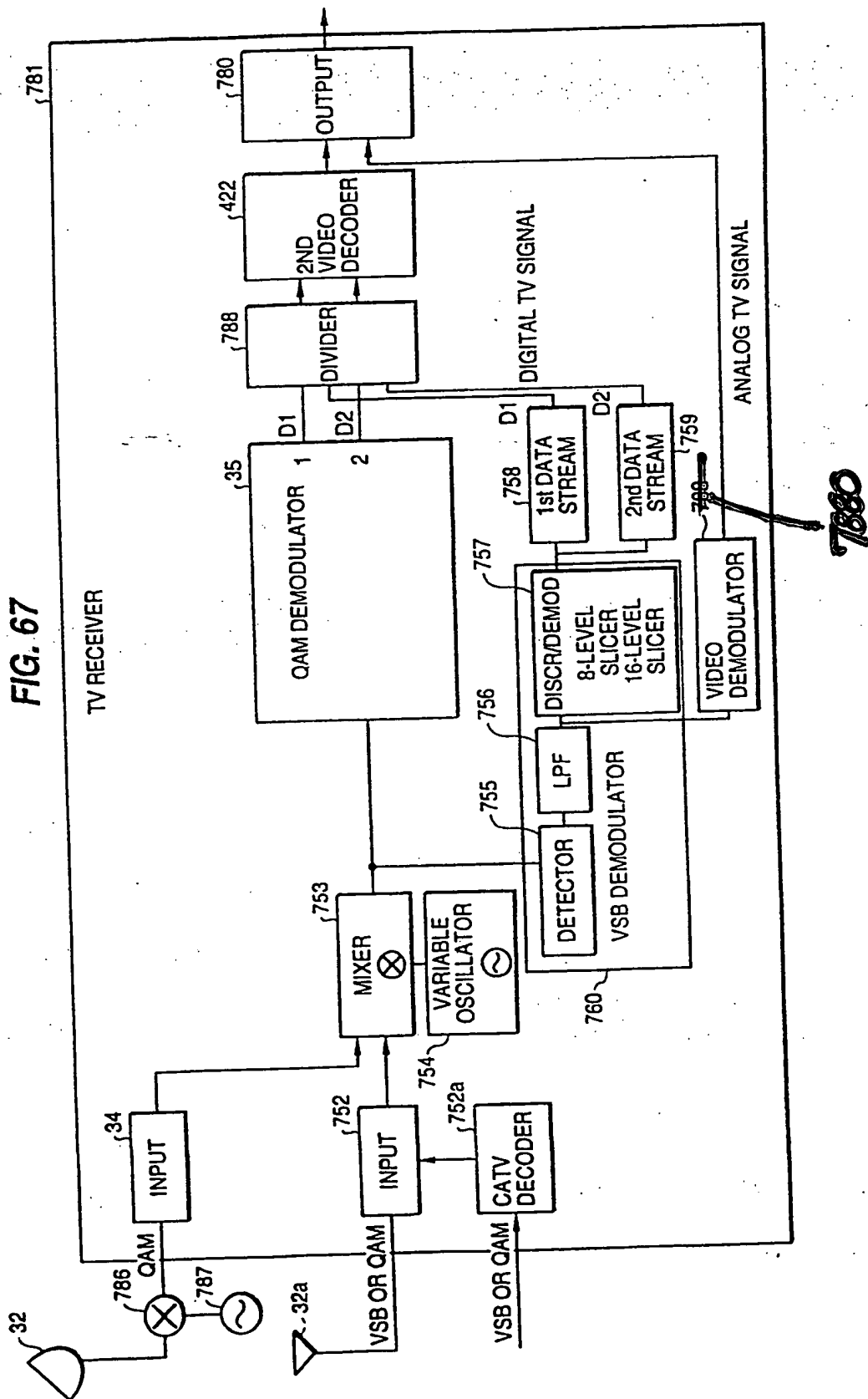


FIG. 93

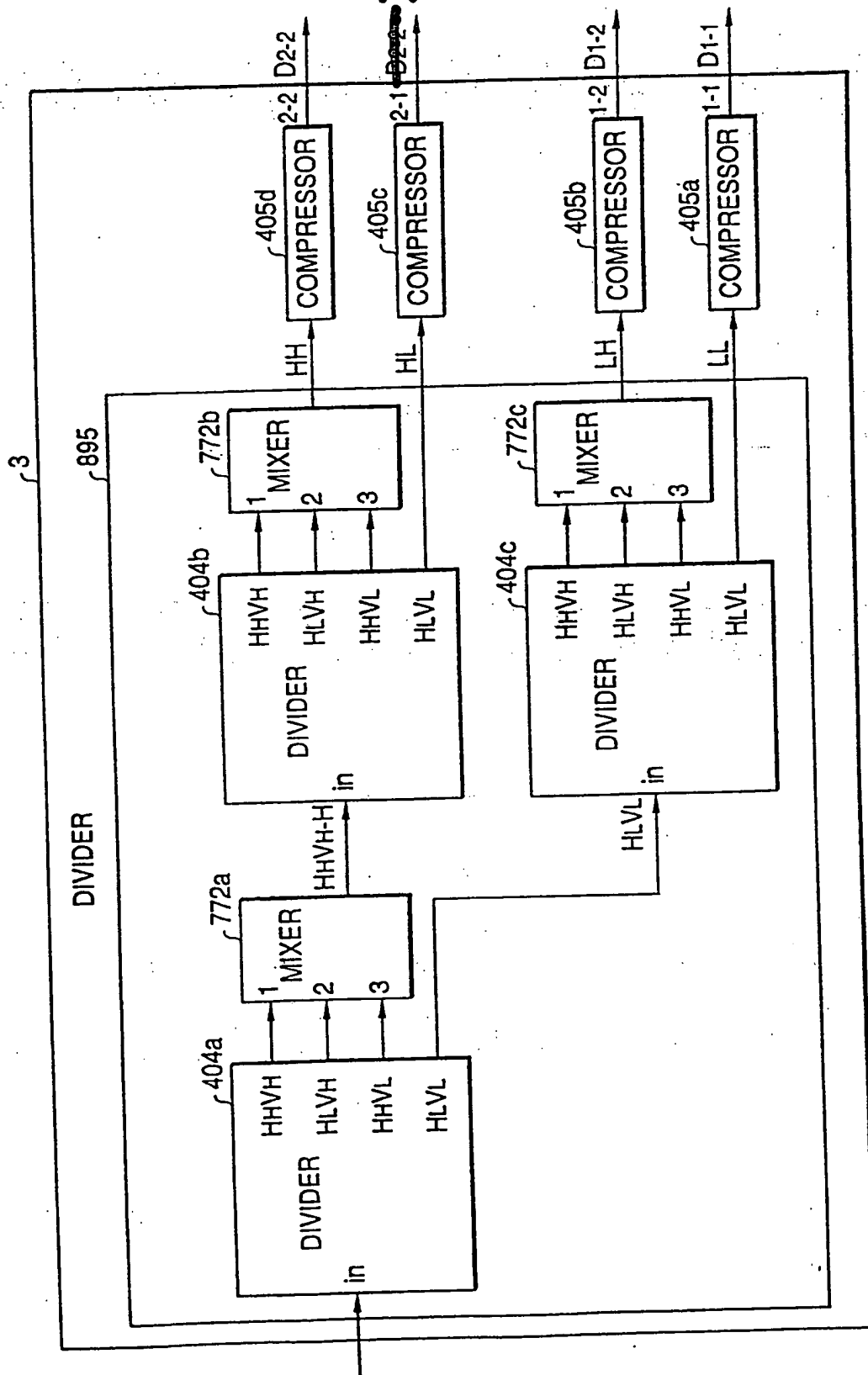
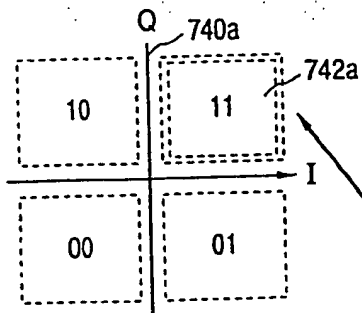
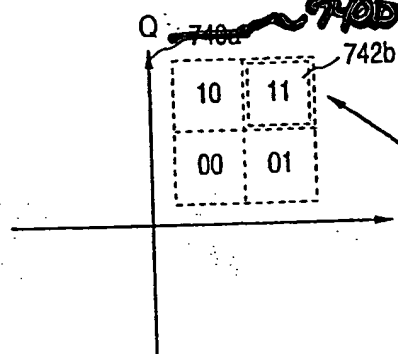


FIG. 112

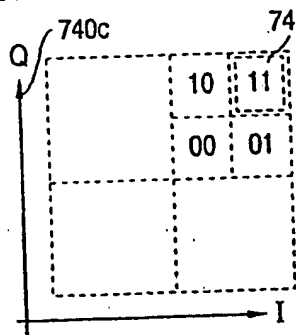
SUBCHANNEL-1 (SRQAM:D1 = 2bit)



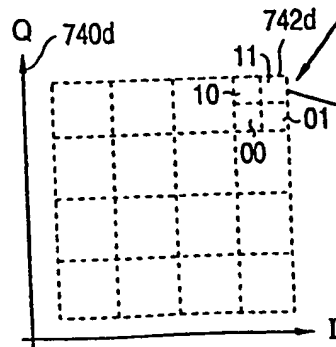
SUBCHANNEL-2 (16-SRQAM:D2 = 2bit)



SUBCHANNEL-3 (64-SRQAM:D3 = 2bit)



SUBCHANNEL-4 (256-SRQAM:D4 = 2bit)

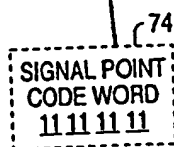
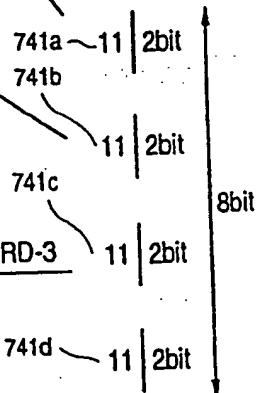


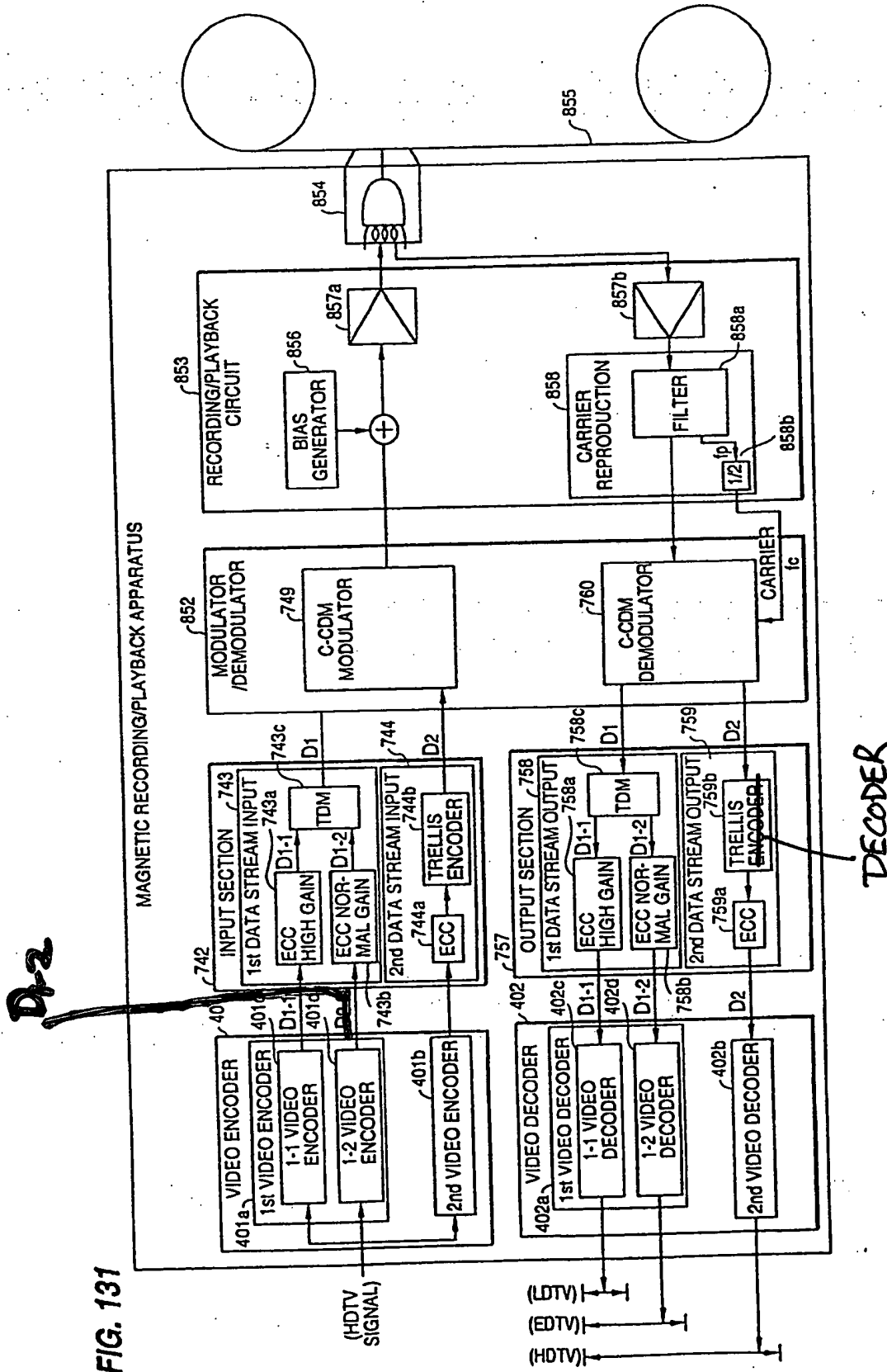
CODE WORD-1

CODE WORD-2

CODE WORD-3

CODE WORD-4





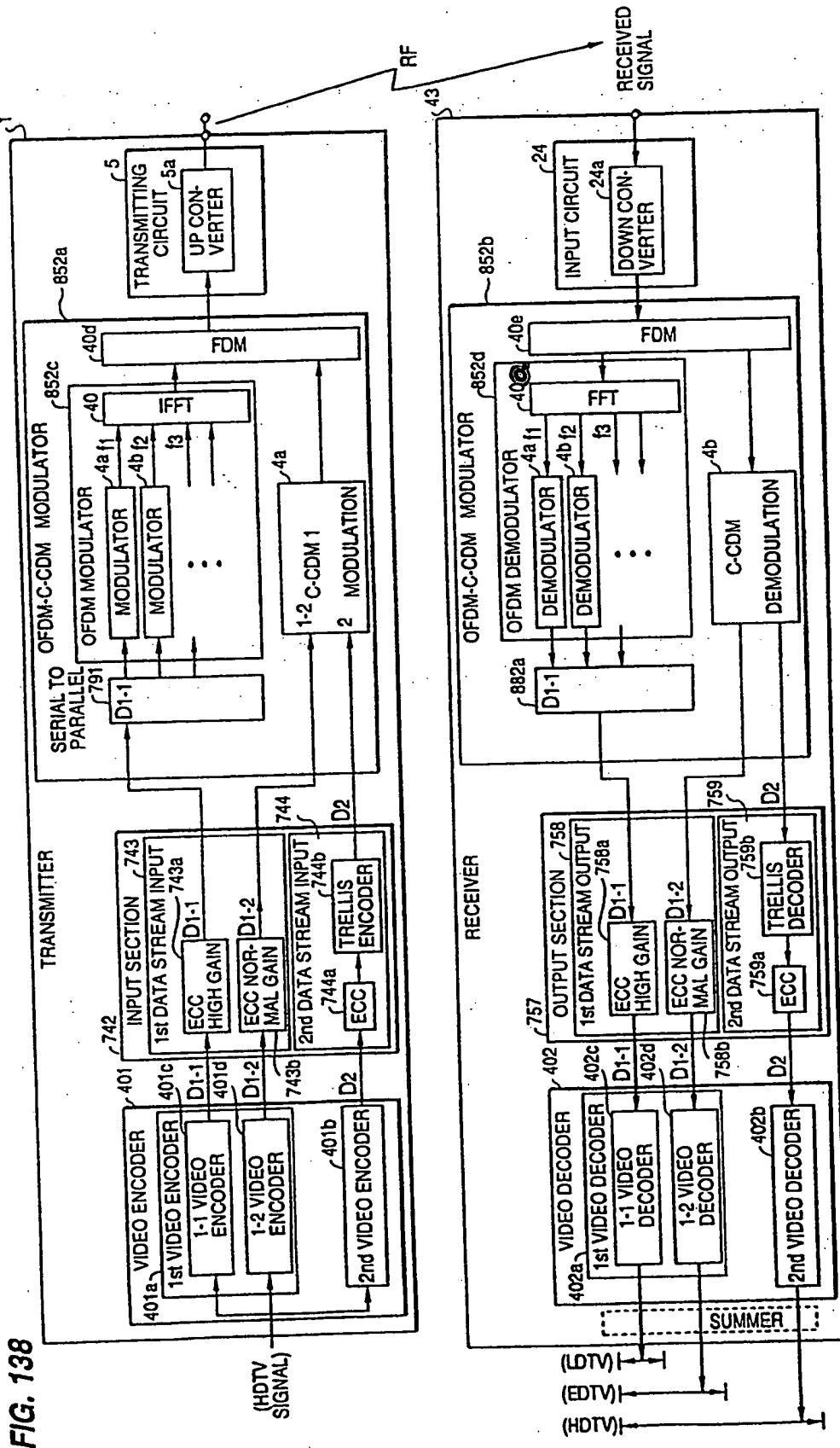


FIG. 144

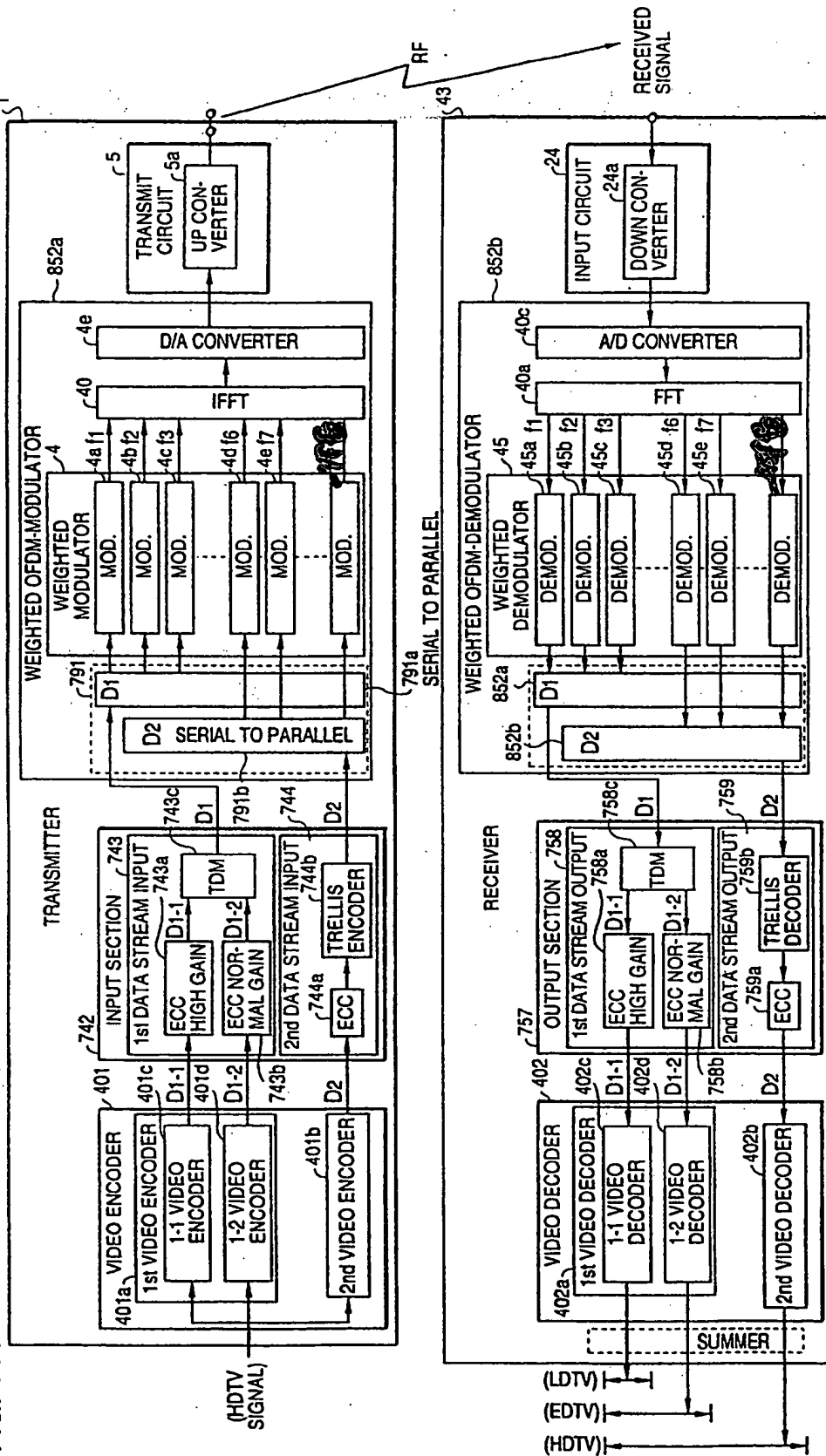


FIG. 169

